

CLAIMS

We claim:

1. A method for guiding a scanning device to decode a 2D symbol, the method comprising:
 - providing a set of substantially parallel positioning lines to the 2D symbol, the positioning lines having a different slope than a horizontal axis of the 2D bar-code; and
 - scanning the 2D symbol together with positioning lines to produce a scanned image.
2. The method as recited in claim 1, wherein the positioning lines are provided on at least one side of the 2D symbol.
3. The method as recited in claim 1, wherein the positioning lines are superimposed upon the 2D symbol, and in a color different from a color of bars in the 2D symbol.
4. The method as recited in claim 1, further comprising determining an orientation of the 2D symbol in the scanner image in reference to the positioning lines.
5. The method as recited in claim 4, wherein at least one of the positioning lines includes a plurality of teeth.
6. The method as recited in claim 5, wherein the teeth is used to correct distortion in the scanned image.
7. The method as recited in claim 1, wherein the positioning lines are in a color different from that of bars in the 2D symbol.

8. The method as recited in claim 7, wherein the color absorbs first illumination from the scanning device.

9. The method as recited in claim 7, wherein the color reflects second illumination from the scanning device.

10. A scanning device for decoding a 2D bar-code attached with a set of equally spaced positioning lines, the scanning device comprising:

- a signal processing chip;

- a document detection module connecting to the processing chip for sending a paper signal when the 2D symbol presents and exists;

- an image sensor sensing the 2D symbol and producing analog signals;

- an analog-to-digital conversion (ADC) module receiving and digitizing the analog signals from the image sensor to produce a digital image thereof in a memory space; and

- a flash memory for storing a decoding software, wherein the decoding software is configured to perform operations of:

 - detecting the positioning lines in the digital image;

 - determining a slope of the positioning lines with respect to a slope of the 2D symbol; and

 - determining an orientation of the 2D symbol.

11. The scanning device as recited in claim 10, wherein at least one of the positioning lines includes a plurality of teeth.

12. The scanning device as recited in claim 11, wherein the teeth is used to correct distortion in the scanned image.

13. The scanning device as recited in claim 10, wherein the positioning lines are in a color different from that of bars in the 2D symbol.

14. The scanning device as recited in claim 13, wherein the color absorbs first illumination from the scanning device.

15. The scanning device as recited in claim 13, wherein the color reflects second illumination from the scanning device.